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Application No. 10/510,421 - - - - - 2

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A conveyor/cooler of solid hot loose materials (3) generated by boilers and by various industrial processes, mainly comprising a sealed metal container (1) connected to a combustion chamber of a boiler or an incinerator (2, 7) and defining at least one air intake port (11, 12), (2-7), wherein a metal conveyor belt (4) in the metal container (1) for collecting is placed whereon the hot loose material (3) deposited thereon due to is collected, which thanks to the gravitational effect upon leaving leaves the combustion chamber and chamber, by forming a traveling continuous bed of material, and nozzles (5) in the metal container positioned above the metal belt and defining an atomized water sprinkling system; wherein cooling whose cooling is carried out through the joint feeding of atomized water jets from the nozzles (5) onto the continuous bed of the hot loose material and air flows over the continuous bed of the hot loose material.

Claim 2 (currently amended): The conveyor/cooler according to claim 1, characterized in that the conveyor belt (4) includes consists of a regenerative heat exchanger which absorbs the heat from the material (3) during travel toward an the forward run towards the unloading area (9) and it gives it up to the air in the return run.

Claim 3 (currently amended): The conveyor/cooler according to claim 1, characterized in that the device is adapted for installation can be installed underneath the boilers or incinerators wherein the combustion occurs either under vacuum (2) or pressure (7) with respect to the outer atmosphere.

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Claim 4 (currently amended): The conveyor/cooler according to claim 3, characterized in that the device allows the recovery of thermal energy taken from the hot material (3) when it operates under vacuum; said recovery takes place by introducing the heated air with the heat given up by the material (3) into the ~~chamber of combustion~~ chamber of the boiler (2) by thus mixing it to the main combustion air.

Claim 5 (currently amended): The conveyor/cooler according to claim 1, characterized in that the intake air capacity into the metal container (1) from air intake ports ~~(11, 12)~~ the air intakes ~~(11-12)~~ can be adjusted in order to optimize the cooling.

Claim 6 (currently amended): The conveyor/cooler according to claim 1, characterized in that a scraping conveyor (10) with chains or with a metal net is provided in order to scrape the material's dust from the bottom of the container (1), wherein is deposited and is conveyed towards an ~~towards the~~ unloading area (9).

Claim 7 (canceled).

Claim 8 (currently amended): The conveyor/cooler according to claim 1, ~~claim 7~~, characterized in that the number of nozzles (5) therein, their plano-volumetric arrangement inside of the metal container (1) and the type of each single nozzle (5), are preset according to the chemical-physical characteristics of the conveyed material (3), according to the capacity of the same material and according to the desired cooling degree.

Claim 9 (currently amended): The conveyor/cooler according to claim 1, ~~claims 7 and 8~~, characterized in that the capacity of the nozzles (5), the intervention sequence and the duration of the activation are defined according to the temperature of the material (3) and according to the level of the capacity of the same material.

Claim 10 (currently amended): The conveyor/cooler according to claim 9, characterized in that inside the metal container (1) temperature ~~some temperature~~ sensors (14) are installed whose signals are used in order to adjust the operation of the atomized water sprinkling system.

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Claim 11 (currently amended): The conveyor/cooler according to claim 8, characterized in that the spraying angle of the nozzles (5) ~~covers must be such to cover the~~ entire surface of the traveling bed formed by the hot material (3).

Claim 12 (currently amended): A conveyor/cooler of solid hot loose materials (3) generated by boilers and by various industrial processes, comprising a sealed metal container (1) connected to combustion chamber of a boiler or an incinerator (2, 7), and a metal conveyor belt (4) in the metal container (1) for receiving the hot loose material (3) from the combustion chamber by gravity and forming a traveling continuous bed of material cooled by the joint action of atomized water jets and air flows, and wherein ~~The conveyor/cooler according to claim 7, characterized in that the nozzles (5) are provided in the metal container (1) and define an atomized~~ of the atomized water sprinkling system and are connected ~~can be~~ connected to a compressed air plant in order to jointly atomize water and air with respect to the need to optimize the cooling by appropriately measuring out the capacities of the water and air two elements.

Claim 13 (currently amended): A conveyor/cooler of solid hot loose materials (3) generated by boilers and by various industrial processes, comprising a sealed metal container (1) connected to combustion chamber of a boiler or an incinerator (2, 7), and a metal conveyor belt (4) in the metal container (1) for receiving the hot loose material (3) from the combustion chamber by gravity and forming a traveling continuous bed of material cooled by the joint action of atomized water jets and air flows, and ~~The conveyor/cooler according to claim 1, characterized in that the device is equipped with a capacity control system for~~ system of the hot loose material (3) conveyed by the metal belt (4) which allows determining reference the reference ~~values~~ values suitable to adjust the intensity of the water and air flows cooling means (air and water).

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Claim 14 (currently amended): The conveyor/cooler according to claim 13, characterized in that the capacity control of the hot loose conveyed material (3) is carried ~~can be carried~~ out by using a weighing system (8) directly connected to the conveyor belt (4).

Claim 15 (original): The conveyor/cooler according to claim 13, characterized in that the capacity control of the hot loose conveyed material (3) can be carried out by using a strap iron (15) hinged to the cover of the metal container (1).

Claim 16 (currently amended): The conveyor/cooler according to claim 1, characterized in that the plates of the metal conveyor belt (4) are equipped ~~can be equipped~~ with appropriate slots (6) that in order to allow the passage of the cooling air flow through the whole layer of the continuous bed formed by the hot loose material (3) traveling on said above ~~said~~ metal belt (4).

Claim 17 (currently amended): The conveyor/cooler according to claim 16, characterized in that the geometry, the number and the arrangement of the slots (6) made in the plates of the metal conveyor belt (4) is ~~must be~~ defined as a function of the type, the amount and mainly with respect to the grain size of the conveyed material (3) so as to prevent this material from leaking and falling ~~avoid that this latter would leak and fall~~ to the bottom of the metal container (1).

Claim 18 (currently amended): The conveyor/cooler according to claim 16, characterized in that the fraction of ~~it is possible to adjust the fraction of~~ the cooling air flow which runs through the slots (6) ~~in made on~~ the plates of the metal belt (4) is adjustable, with respect to the specific cooling needs and to the possible presence of unburnt matter.